

CLAIMS

- 1 1. An optical flow cell, comprising:
2 a shell having a first portion and a second portion, wherein said first
3 portion provides a light entry aperture, and said second portion provides
4 an imaging aperture;
5 an inlet tube and an outlet tube retained between said first portion
6 and said second portion; and
7 a viewing assembly retained between said first portion and said
8 second portion, wherein said viewing assembly includes a reference plate
9 and a flow channel, said flow channel fluidly communicating with said
10 inlet tube and said outlet tube.
- 1 2. An optical flow cell according to claim 1, wherein said reference plate
2 extends from said shell, and serves as a repeatable reference point to
3 properly position the optical flow cell.
- 1 3. An optical flow cell according to claim 1, wherein said reference plate is
2 separated from a sealing plate by bonding strips, said flow channel being
3 formed between said bonding strips,
- 1 4. An optical flow cell according to claim 1, wherein said first portion and said
2 second portion each include channels adapted to accommodate said
3 viewing assembly, when said viewing assembly is retained between said
4 first portion and said second portion.
- 1 5. An optical flow cell according to claim 1, wherein said first portion includes
2 an inlet tube receiving notch and an outlet tube receiving notch and said
3 second portion includes an inlet tube receiving notch and an outlet tube
4 receiving notch, and when said inlet tube and said outlet tube are retained
5 within said shell, said inlet tube is positioned between said inlet tube

6 receiving notches and said outlet tube is positioned between said outlet
7 tube receiving notches.

1 6. An optical flow cell according to claim 1, wherein said inlet tube has a
2 circular cross section, said outlet tube as a circular cross section, and said
3 flow channel has a rectangular cross section, said first portion and said
4 second portion configured to smoothly transition flow of a sample fluid
5 material between said first outlet tube and said flow channel and between
6 said flow channel and said second outlet tube.

1 7. An optical flow cell according to claim 6, further comprising a first channel
2 provided on said first portion, and semi-cylindrical transition notches
3 oppositely oriented on either side of said channel, a second channel
4 provided on said second portion, and first specially-configured transition
5 notches are oppositely oriented on either side of said second channel, said
6 specially-configured transition notches each including a tapered portion,
7 and said semi-cylindrical transition notches and said first specially-
8 configured transition notches opposed to one another on either side of said
9 channel when said optical flow cell is assembled.

1 8. An optical flow cell according to claim 7, wherein second specially-
2 configured transitions notches are provided adjacent said second semi-
3 cylindrical transition notches on said first portion, said second specially-
4 configured transition notches opposing a plate of said viewing assembly
5 when said optical flow cell is assembled.

1 9. An optical flow cell, comprising:
2 a shell having a first portion and a second portion, wherein said first
3 portion provides a light entry aperture, and said second portion provides an
4 imaging aperture;

5 an inlet tube and an outlet tube retained between said first portion
6 and said second portion; and

7 a viewing assembly retained between said first portion and said
8 second portion, said viewing assembly including a reference plate and a
9 flow channel, said flow channel fluidly communicating with said inlet tube
10 and said outlet tube, wherein said inlet tube has a circular cross section,
11 said outlet tube as a circular cross section, and said flow channel has a
12 rectangular cross section, said first portion and said second portion
13 configured to smoothly transition flow of a sample fluid material between
14 said first outlet tube and said flow channel and between said flow channel
15 and said second outlet tube.